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ABSTRACT

In the experimental school, students were exposed over 3 years to teachers trained in Effective Classroom Management (ECM), a program designed to enhance teachers' skills in dealing with the affective needs of students. Students were expected to benefit from this exposure by adopting more positive attitudes, behaviors and norms with regard to themselves, peers, teachers, and school. Ninth graders in the experimental school were compared with ninth graders in a control school; both groups were pretested during the first year of this study and posttested at the end of the third year. For boys, although there was a pattern of negative treatment effects, these were probably artifacts of the research design. For girls, there was no evidence of treatment effects. Analyses within the experimental school revealed a pattern of effects favoring students having the fewest classes with ECM trained teachers. The results indicated that students failed to adopt more constructive attitudes or behaviors as a result of this exposure. It is unlikely that ECM training will equip teachers to countervail the attitudes and behaviors that predispose students to abuse substances. (Author/PN)

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Evaluation of an Affective Education Program for Teachers: Cumulative Effects on a Cohort of Junior High Students

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Abstract

In the experimental school, students were exposed over three years to teachers trained in Effective Classroom Management, a program designed to enhance teachers' skills in dealing with the affective needs of students. Students were expected to benefit from this exposure by adopting more positive attitudes, behaviors and norms with regard to themselves, peers, teachers, and school. Ninth graders in the experimental school were compared with 9th graders in a control school; both groups were pretested during the first year of this study and posttested at the end of the third year. For boys, although there was a pattern of negative treatment effects, these were probably artifacts of the research design. For girls, there was no evidence of treatment effects. Analyses within the experimental school revealed a pattern of effects favoring students having the fewest classes with ECM-trained teachers.

Introduction

The present paper reports the effects on students of three years of exposure to teachers trained in Effective Classroom Management (ECM). Between Fall 1978 and Spring 1981, a cohort of students in a single junior high school attended classes in which most of the teachers were trained in communication, problem-solving, discipline, and self-esteem enhancement skills. The in-service training was provided to teachers in three separate courses. During the first two years of this study, teachers who volunteered, participated in either or both of two versions of ECM. The main difference between the two versions was the substitution in the second version of discipline skills for problem-solving skills. During the third year of this study, participants were provided a three-session review course.

The courses were designed for regular classroom teachers, to enhance their skills in dealing with the affective needs of students. The students were expected to benefit from the teachers' training by adopting more positive attitudes, behaviors and norms with respect to themselves, peers, teachers, and school. Because these attitudes, behaviors, and norms are correlates of drug use, any positive changes in them were expected to ultimately reduce students' acceptance and use of psychoactive substances.

The effects of the first and second years of ECM in-service training have been reported elsewhere (Schaps, et al., Note 1; Moskowitz, et al., Note 2). Briefly, predicted treatment effects were not found for 7th-9th grade students

as a result of the first year of ECM training. The second report presented the effects of two years of ECM training on 8th and 9th grade students (those in the 7th and 8th grade during the first study). For the most part, the predicted pattern of student outcomes was not obtained. However, for 9th grade males, some hypothesized effects were found for affective teaching climate and locus of control, but these were considered spurious. Furthermore, no relationship was found between student outcomes and the amount of exposure to ECM-trained teachers over two school years. Failure to find treatment effects previously was attributed to weaknesses in the ECM training and inadequate teacher implementation.

The present evaluation of three years of ECM employed a nonequivalent control group (Cook and Campbell, 1979) with a pretest at the beginning of the first year and a posttest at the end of the third year. Although there were two intervening posttests associated with the interim evaluations of ECM, these are not reanalyzed for the present paper. The experimental group consisted of 9th grade students from a single junior high school. (The students were in 7th grade during the first year of the study.) Most of the teachers in this school participated in at least one of the three ECM courses. The control group consisted of 9th grade students in a second junior high school in the same school district.

In this study, both the correlates and actual measures of drug attitudes and use were assessed. The hypotheses under investigation were that ECM exposure would positively influence affective teaching climate, attitudes toward school, social self-esteem, and discipline problems.

METHOD

Assignment of Schools to Condition

Two junior high schools (grades 7-9) from a predominantly white, suburban public school system in Northern California participated in this study. The socioeconomic composition of the community from which the schools draw is middle-class. One school was assigned to the experimental condition and the other school to the control condition.

Subjects

Subjects in the present analyses entered the study as 7th graders.[1] At the beginning of this study there were 352 students in grade 7 in the experimental school and 190 in the control school.[2] A total of 154 students (44%) from the experimental school and 103 students (54%) from the control school were deleted from the analyses because complete data were not available for them. In addition, 12 students who reported substantial use of a fictitious drug were eliminated from analyses.

The experimental group in the present analyses included 96 boys and 94 girls in the 9th grade. The control group included 38 boys and 45 girls in the 9th grade. The ethnic composition of the analysis sample was 94% (N = 179) white in the experimental school and 88% (N = 73) white in the control school.

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[1]Special education students were not included in the study.

[2]An additional 69 students from the experimental school and 165 students from the control school were excluded from the present study because they participated in other studies.

Procedures

In-service training program. In each of three consecutive years, teachers in the experimental school were offered training in ECM; teachers in the control school were offered no in-service training. Of the 48 eligible faculty members in the experimental school all three years, 10 (21%) completed only the first ECM course, 5 (10%) completed only the second course, 15 (31%) completed two of the three courses, and 7 (15%) completed all three courses.

The first year of the ECM in-service program consisted of ten two-hour sessions and one "reunion" session. The second-year ECM course consisted of seven two-hour training sessions held weekly and two "reunion" sessions. In the third year, teachers were provided a three-session ECM "review" course. For attending the sessions and applying the ECM skills in their classrooms, teachers in the first two courses were paid $200 and were offered post-graduate credits. For the third ECM course, teachers received a $60 stipend.

The training sessions for the first two courses followed a standard format. First, a self-concept enhancement activity or technique was introduced. Then, the skills taught in prior sessions were reviewed, and the teachers' experiences using the skills in the classroom were discussed. New skills were than introduced and practiced. Details of the first two courses can be found in Schaps, et al. (Note 1) and Moskowitz, et al. (Note 2).

The third ECM course consisted of three two-hour sessions wherein skills and activities taught in the previous courses were reviewed. In the first session, participants were asked to write a brief description providing an illustration of each ECM skill. The trainer reviewed correct and incorrect applications of the skills and conducted an assessment of the participants'

needs regarding skill development. The next two sessions were devoted to practice of the ECM skills, utilizing role-plays of student-teacher interaction.

As in prior years, the trainer observed the teachers in their classrooms at least three times between November 1980 and May 1981. After each visit, the trainer provided feedback to the teachers on their classroom behavior.

Student survey. The student pretest was administered in October 1978; posttests 1, 2, and 3 were administered in May 1979, 1980 and 1981, respectively. The questionnaires were administered by substitute teachers during two regular class sessions. The Student Questionnaire and Self Observation Scales (pretest only) were administered during the first session, and the Drug and Alcohol Survey (DAS) was administered during the second session. Make-up sessions were held for students who were absent at the time of the original sessions.

Questionnaires were pre-labeled with student names on the cover sheet and student identification numbers on page one. The administrators stressed the confidentiality of the survey and instructed students to remove their names from the DAS for added emphasis.

Measures

Self-reports. The student questionnaire data were obtained at pretest with the Self Observation Scales (SOS) (Stenner and Katzenmeyer, Note 3), the Intellectual Achievement Responsibility Questionnaire (IAR) (Crandall, Katkovsky, and Crandall, 1965),[3] and the Drug and Alcohol Survey (DAS) (Moskowitz, et al.,

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[3]Four items referring to "parents" were adapted to read "an adult who knows you" in order to conform to California Education Code. Because passive parental permission for student participation was utilized, we could not ask questions about family life.

Note 4). The SOS measures students' perceptions of themselves and their relationsihps to their peers, their teachers, and their school. The IAR measures the belief in one's own control over intellectual or academic performance. The DAS assesses the following variables for each of ten substances: lifetime and current use, attitudes toward use, intentions to use, and perceptions of peers' attitudes toward drug use.[4] The DAS also measures general drug attitudes, and perceived benefits of using alcohol, cigarettes, and "pills[5]."

Posttest 1 data were obtained with the SOS, the Student Questionnaire (SQ) (Moskowitz, et al., Note 5), and a revised version of the DAS. The SQ contained a) 18 items from the IAR, a measure of locus of control for success and failure events, b) the Scholastic subscale from the Self Appraisal Inventory (secondary level; Instructional Objectives Exchange, Note 6), a criterion-referenced measure of academic self-esteem, c) the Authority and Control and Interpersonal Relationships with Pupils subscales from the School Sentiment Index (secondary level; Instructional Objectives Exchange, Note 7), a criterion-referenced measure of attitudes toward school, and d) a measure of perceived peer attitudes toward school developed for this study by adapting items that measure attitudes toward school from eight instruments. The revised DAS assesses for each of ten substances: lifetime and current use, attitudes toward use, intentions to use, perceptions of peers' attitudes toward use, and

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[4]The substances were alcohol, cigarettes, marijuana or hashish, inhalants, barbiturates or tranquilizers, amphetamines or stimulants, cocaine, PCP, LSD or psychedelics, and heroin or morphine. "Street" names were provided for most substances. Current use was defined as "during the past three months." Intentions were defined as "during the next two years." Peers were defined as "most students in my grade."

[5]Pills were defined as "pep pills, sleeping pills, uppers, downers, soapers."

the perceived prevalence of peer use.[6] In addition, the revised DAS measures drug knowledge, general drug attitudes, and the perceived positive and negative consequences (i.e., benefits and costs) of using three different substances. Item wordings and response formats differed slightly from the earlier version.

Posttest 2 and posttest 3 data were collected with a revised version of the SQ and the revised DAS. The new SQ incorporated the empirically derived scales from the original SQ and the SOS (Moskowitz, et al., Note 5) and used a modified response format for most items.

The measures employed in the data analysis were derived from empirical scaling. Details of the scaling procedures and results are reported by Moskowitz, et al. (Notes 4 and 5). The pretest and posttest scales are listed in Table 1 along with the number of items contained in each scale, and the scale's internal consistency reliabilities estimated by coefficient alpha. Several posttest scales were not available at pretest, as noted in the table; also, the "involvement" scales combined items that measure current use, lifetime use and intentions to use. Substances that were considered "soft" were alcohol, cigarettes, and marijuana; the remaining substances were considered "hard." The reliabilities were adequate for all scales except drug knowledge, where guessing may have reduced the reliability. Pretest and posttest reliabilities for equivalent scales were similar, despite some differences in item wordings and response formats.

Archival records. Student discipline records for four months in the spring semesters of 1979, 1980, and 1981 were obtained from both schools.

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[6]Current use was defined as "during the last four weeks." Intentions were defined as "during the next year."

TABLE 1

STUDENT PRETEST AND POSTTEST SCALES, NUMBER OF ITEMS AND INTERNAL CONSISTENCY RELIABILITIES (COEFFICIENT ALPHA)

	PRETEST		POSTTEST	
Subscale	Number of Items	Reliability	Number of Items	Reliability
Locus of Control: Success (Control Succ)	13	.63	7	.66
Locus of Control: Failure (Control Fail)	10	.61	7	.61
Academic Self-Esteem (Acad Self)	5	.65	12	.84
Social Self-Esteem (Social Self)	11	.80	11	.80
Affective Teaching Climate (Affec Climate)	8	.79	18	.89
Attitudes Toward School (Att School)	8	.82	8	.83
Perceived Peer Attitudes Toward School (Peer Att Sch)	NA[a]	-	8	.74
Drug Knowledge (Knowledge)	NA	-	7	.40
General Drug Attitudes (General Att)	17	.92	17	.93
Attitudes Toward Soft Drug Use (Soft Att)	3	.79	3	.76
Attitudes Toward Hard Drug Use (Hard Att)	7	.93	7	.93
Perceived Peer Attitudes Toward Soft Drugs (Soft Peer Att)	3	.87	3	.84
Perceived Peer Attitudes Toward Hard Drugs (Hard Peer Att)	7	.96	7	.96
Perceived Benefits of Alcohol Use (Alc Benefits)	8	.85	8	.85
Perceived Benefits of Marijuana Use (Pot Benefits)	8	.89	8	.91

Subscale	PRETEST Number of Items	PRETEST Reliability	POSTTEST Number of Items	POSTTEST Reliability
Perceived Benefits of Pill Use (Pill Benefits)	8	.92	8	.91
Perceived Costs of Alcohol Use (Alc Costs)	NA	-	5	.84
Perceived Costs of Marijuana Use (Pot Costs)	NA	-	5	.90
Perceived Costs of Pill Use (Pill Costs)	NA	-	5	.89
Perceived Peer Use of Soft Drugs (Soft Peer Use)	NA	-	3	.82
Perceived Peer Use of Hard Drugs (Hard Peer Use)	NA	-	7	.96
Involvement in Alcohol Use (Alc Involve)	3	.92	3	.88
Involvement in Cigarette Use (Cig Involve)	3	.92	3	.91
Involvement in Marijuana Use (Pot Involve)	3	.95	3	.95
Involvement in Inhalant Use (Inh Involve)	3	.86	3	.70
Involvement in Barbiturate Use (Barb Involve)	3	.84	3	.89
Involvement in Amphetamine Use (Amp Involve)	3	.88	3	.90
Involvement in Cocaine Use (Coc Involve)	3	.75	3	.88
Involvement in PCP Use (PCP Involve)	3	.83	3	.86
Involvement in LSD Use (LSD Involve)	3	.70	3	.87
Involvement in Heroin Use (Heroin Involve)	3	.93	3	.77

[a]Items on these scales were not administered at pretest.

These records were maintained by the deans in the two schools to document student behavior problems. Two indices were constructed for each year of data: a) drug related problems (Drug Problems), including use, possession or sale of tobacco, alcohol, marijuana, and other drugs; and b) general behavior problems (Non-drug Problems), including all other types of student misbehavior.

The total number of unexcused absences for each school year (Unex Abs) was obtained from school district records and served as a measure of student attendance. This type of absence occurs when a student fails to provide the school with a note from a parent or guardian indicating that the student was sick. Grade point average (GPA) was obtained from school records for each spring semester; in calculating GPA, academic grades from all courses were weighted equally, and this served as a measure of academic achievement. Students' sex and ethnicity were also obtained from district records.

From Napa Project files and school records, an index of exposure to the ECM-trained teachers (ECM Expos) was created for students in the experimental school. This index equalled the number of courses in which the student was enrolled that were taught by teachers trained in ECM.

Data Analysis

Two approaches were employed in the analysis of student data. In the first approach, experimental versus control group differences were examined. This approach included analyses of pretest data that explored biases due to attrition and initial nonequivalence. Then, posttest 3 data were analyzed controlling for some of the initial differences. The second approach examined students within the experimental group in order to determine whether posttest 3 changes were related to the students' amount of exposure to ECM-trained teachers.

Both the assignment to condition and the delivery of treatment was at the school level. Therefore, the school is the appropriate unit of analysis. However, each condition consists of the only one school, which precludes performing statistical analysis at the school level. Results from student level analyses may be spurious because of excess power, in addition to bias produced by the statistical interdependence among students within each school. The present design dictated a student-level analysis; therefore, interpretation of results was based on patterns in the data rather than on isolated findings. The Type I error rate for the analyses was set at .05.

Process Evaluation for Third ECM Course[8]

Teacher Feedback on Training Sessions

At the end of each training session, teachers anonymously completed a one-page "feedback form." This form solicited ratings and comments with regard to the session. Teachers rated each session on interest, organization, usefulness, and enjoyableness, using five-point rating scales with higher numbers signifying more positive ratings.

Teachers rated all sessions favorably. Of the twelve separate ratings (four per session), ten averaged above 4.5. The remaining two ratings were between 4.2 and 4.4.

Implementation Reports by Participants

Near the end of the school year (May 1981), all teachers who participated in the third ECM course completed questionnaires about ECM implementation. Teachers reported how often they used each in-service skill, rated the utility of each skill, and rated their own mastery of each skill. Table 2 summarizes the teacher self-report data. The first four skills listed in Table 2 are communication skills; the next six are classroom management skills; the last "skill"--self-concept enhancing activities--is the series of classroom exercises used apart from the teaching of the regular curriculum.

At least half of the teachers reported using all of the communication skills several times per week. With the exception of clarifying responses, the

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[8]Similar information for the two earlier courses is reported elsewhere (see Schaps, et al., Note 1; Moskowitz, et al., Note 2).

TABLE 2

TEACHERS' REPORTS ON FREQUENCY, UTILITY, AND QUALITY OF ECM SKILL IMPLEMENTATION (N = 11)

In-Service Skill	Percentage of Teachers Using the Skill at Least Several Times per Week	Percentage of Teachers Using the Skill at Least Every Day	Mean Ratings of Utility of the Skill (5=High; 1=Low)	Mean Ratings of Mastery of the Skill[a] (4=Excellent; 1=Poor)
I-Messages	64	18	4.00	2.70
Clarifying Responses	55	0	3.89	2.70
Reflecting Feelings	50	10	4.10	2.60
Reflecting Content	50	10	3.89	2.50
Positive Verbal Feedback	82	18	4.50	2.91
Positive Nonverbal Cues	91	64	4.70	3.27
Tangible Reinforcers	46	18	2.80	2.25
Negative Verbal Feedback	46	9	4.00	2.64
Negative Nonverbal Cues	82	36	4.10	2.91
Time-Out	36	0	3.90	3.10
Self-Concept Enhancement	60	10	4.56	2.60

[a]Teachers who did not use a skill are not included in the mean rating for that skill.

communication skills were used by a small percentage of teachers on a daily basis. Three classroom management skills (positive verbal feedback, positive nonverbal cues, negative nonverbal cues) were used by most of the teachers at least several times per week, and positive nonverbal cues were used by over half of the teachers every day. The remaining classroom management skills were used at least several times per week by 36%-46% of the teachers. Over half of the teachers reported use of self-concept enhancement activities on a weekly basis.

With regard to the utility of the skills, positive nonverbal cues, self-concept enhancement activities and positive verbal feedback were considered most valuable, and tangible reinforcers was considered least valuable. The teachers generally rated their own mastery of the skills as "fair" to "good," seeing themselves as least adept at using tangible reinforcers, reflecting content, reflecting feelings, negative verbal feedback and self-concept enhancement activities.

Trainer Observations of ECM Classroom Implementation

The trainer visited each participant's classroom three or four times between November and May to observe the teachers applying the ECM skills. These observations averaged 45 minutes. After each visit, the trainer recorded a) approximately how frequently each skill was observed and b) how well each skill was applied.

With few exceptions, the following skills were not observed by the trainer: reflecting feelings, tangible reinforcement, negative verbal feedback, time-out, and self-concept enhancement activities. Teachers were observed using I-messages, reflecting content, positive verbal feedback and positive nonverbal feedback, although there was great variation among the teachers in terms of how

frequently each was observed. Clarifying responses and negative nonverbal feedback were observed very rarely. Teachers applied the skills with roughly equal competency. The trainer's ratings of implementation quality averaged 3.93 (i.e., "B") on a five-point scale for most skills.

Individual teachers varied in terms of the range of skills they used across observations. At one extreme, one teacher used eight or nine different skills during the observations; whereas another teacher used, on the average, two skills per observation. The teachers also differed in how well they applied the skills. The range in average quality ratings (across skills and over classroom visits) was between 3.22 (i.e., "C") for one teacher and 4.94 (i.e., "A") for another.

Results

Initial Equivalence and Attrition

Analyses were conducted to determine whether a) students in the experimental and control groups were equivalent on the pretest measures and, b) the experimental and control groups were affected differentially by attrition. The means and standard deviations for all student pretest and posttest measures are summarized in Table 3 for each sex and treatment condition. The posttest 3 results will be discussed later. For attendance, discipline and drug-related variables (except Knowledge), a low score is desirable; whereas, for all other variables, a high score is desirable.

Two-way analyses of variance were performed for each of the student pretest measures, with treatment condition (experimental vs. control) and attrition status (attrited vs. nonattrited) as the factors. These analyses were conducted separately for each sex. A main effect for treatment condition would suggest initial nonequivalence, and hence, limit both internal and external validity. A main effect for attrition status would limit external validity, and the interaction between treatment condition and attrition status would limit both internal and external validity.

For boys, significant treatment by attrition interactions were obtained on affective teaching climate, alcohol benefits and pill benefits. In all cases, the cell means indicated that the experimental group lost the "better" students, whereas, the control group lost the "worse" students in terms of the outcome variables. This provides evidence of differential attrition, which could bias

TABLE 3

MEANS AND STANDARD DEVIATIONS OF STUDENT MEASURES BY SEX AND BY TREATMENT CONDITION

		Males				Females			
		Experimental		Control		Experimental		Control	
Measure	Test	M	SD	M	SD	M	SD	M	SD
Control Succ	Pre	1.83	.17	1.82	.14	1.83	.15	1.85	.12
	Post 1	1.84	.20	1.89	.14	1.87	.17	1.90	.15
	Post 2	1.78	.19	1.73	.16	1.82	.15	1.83	.17
	Post 3	1.80	.20	1.82	.20	1.87	.13	1.82	.21
Control Fail	Pre	1.73	.19	1.62	.23	1.70	.20	1.68	.22
	Post 1	1.73	.24	1.75	.22	1.74	.22	1.82	.20
	Post 2	1.69	.24	1.65	.24	1.74	.20	1.76	.23
	Post 3	1.69	.26	1.74	.20	1.77	.20	1.84	.18
Acad Self	Pre	1.86	.18	1.84	.20	1.82	.22	1.81	.23
	Post 1	2.41	.38	2.46	.42	2.33	.43	2.49	.39
	Post 2	2.78	.44	2.89	.49	2.77	.55	2.80	.50
	Post 3	2.82	.46	2.91	.43	2.85	.50	2.88	.52
Social Self	Pre	1.81	.21	1.76	.27	1.81	.21	1.82	.19
	Post 1	1.81	.24	1.79	.26	1.82	.22	1.89	.15
	Post 2	2.99	.41	3.09	.34	3.09	.43	3.15	.38
	Post 3	3.00	.42	3.02	.35	3.10	.34	3.18	.38
Affec Climate	Pre	1.82	.25	1.83	.16	1.88	.20	1.84	.18
	Post 1	2.27	.36	2.38	.32	2.33	.39	2.42	.37
	Post 2	2.60	.49	2.75	.54	2.79	.50	2.77	.57
	Post 3	2.55	.48	2.75	.54	2.81	.46	2.90	.46
Att Sch	Pre	1.69	.25	1.75	.26	1.83	.23	1.86	.18
	Post 1	1.60	.32	1.71	.28	1.69	.31	1.77	.23
	Post 2	2.31	.64	2.63	.72	2.67	.71	2.78	.60
	Post 3	2.25	.63	2.72	.56	2.57	.64	2.79	.64
Peer Att Sch	Post 1	2.60	.38	2.74	.42	2.67	.41	2.73	.37
	Post 2	2.40	.41	2.56	.40	2.54	.38	2.49	.35
	Post 3	2.33	.37	2.59	.45	2.40	.38	2.63	.35
GPA	Pre	3.63	.56	3.74	.49	3.69	.54	3.87	.53
	Post 1	3.53	.59	3.69	.53	3.41	.57	3.72	.59
	Post 2	3.30	.76	3.72	.59	3.52	.84	3.74	.62
	Post 3	3.56	.61	3.78	.62	3.63	.72	3.75	.78
Unex Abs	Post 1	.90	2.17	1.63	2.10	1.09	1.73	.87	1.89
	Post 2	.99	1.94	1.55	2.15	2.18	5.79	1.44	1.78
	Post 3	1.28	2.01	2.11	2.88	2.15	3.14	2.38	3.83
Non-drug Prob	Post 1	1.17	1.81	.18	.69	.43	1.00	.42	1.22
	Post 2	1.16	2.06	.58	1.75	.61	1.35	.24	.71
	Post 3	1.19	1.80	.63	1.28	.43	1.04	.18	.53
Drug Prob	Post 1	.00	.00	.00	.00	.01	.10	.04	.21
	Post 2	.02	.14	.00	.00	.07	.26	.11	.38
	Post 3	.00	.00	.08	.36	.03	.18	.07	.25

		Males				Females			
		Experimental		Control		Experimental		Control	
Measures	Test	M	SD	M	SD	M	SD	M	SD
Knowledge	Post 1	3.35	1.44	2.92	1.42	2.82	1.40	2.37	1.11
	Post 2	2.53	1.25	2.47	1.25	2.76	1.21	2.33	1.04
	Post 3	2.77	1.33	2.59	1.42	2.94	1.22	2.53	1.27
General Drug Att	Pre	1.90	.65	1.86	.64	1.84	.58	1.95	.75
	Post 1	2.06	.79	2.07	.69	2.08	.90	2.18	.85
	Post 2	2.37	.94	2.19	.86	2.23	.87	2.18	.95
	Post 3	2.53	.94	2.20	.90	2.27	.79	2.33	1.00
Soft Att	Pre	1.75	.63	1.67	.66	1.76	.75	1.81	.78
	Post 1	1.98	.80	1.89	.65	2.10	.84	2.23	1.04
	Post 2	2.32	.88	2.11	.85	2.21	.94	2.17	.98
	Post 3	2.34	.84	2.15	.85	2.22	.76	2.34	.91
Hard Att	Pre	1.20	.38	1.20	.41	1.26	.50	1.19	.45
	Post 1	1.34	.53	1.27	.45	1.42	.67	1.43	.69
	Post 2	1.58	.97	1.36	.72	1.39	.57	1.35	.65
	Post 3	1.54	.83	1.41	.62	1.36	.53	1.44	.66
Soft Peer Att	Pre	2.12	.95	2.13	.89	2.29	.98	2.28	.97
	Post 1	2.56	.99	2.44	1.07	2.78	1.11	3.03	1.17
	Post 2	2.89	1.13	2.55	1.08	3.02	1.02	3.22	1.20
	Post 3	3.07	.92	2.75	.92	3.38	.79	3.29	.87
Hard Peer Att	Pre	1.52	.75	1.54	.73	1.64	.81	1.46	.57
	Post 1	1.82	.98	1.65	.89	1.97	1.00	2.04	1.11
	Post 2	2.10	1.21	1.83	.97	2.10	.89	2.10	1.00
	Post 3	2.01	.97	1.73	.79	2.16	.82	2.03	1.00
Alc Benefits	Pre	1.60	.63	1.42	.45	1.54	.60	1.47	.58
	Post 1	1.63	.72	1.50	.58	1.64	.69	1.62	.68
	Post 2	1.80	.77	1.64	.73	1.70	.72	1.75	.82
	Post 3	1.97	.87	1.68	.79	1.72	.59	1.79	.79
Pot Benefits	Pre	1.60	.68	1.41	.50	1.52	.66	1.57	.80
	Post 1	1.63	.76	1.59	.70	1.70	.80	1.64	.76
	Post 2	1.81	.95	1.72	.83	1.68	.79	1.68	.85
	Post 3	1.98	1.01	1.62	.86	1.70	.67	1.66	.85
Pill Benefits	Pre	1.55	.62	1.32	.48	1.41	.55	1.33	.53
	Post 1	1.52	.76	1.34	.52	1.49	.60	1.30	.43
	Post 2	1.51	.84	1.38	.66	1.47	.62	1.45	.68
	Post 3	1.60	.79	1.42	.72	1.47	.61	1.48	.69
Alc Costs	Post 1	1.98	.71	1.83	.63	1.98	.74	1.99	.72
	Post 2	2.15	.71	2.02	.70	1.99	.70	1.97	.77
	Post 3	2.34	.72	2.08	.80	2.11	.54	2.13	.71
Pot Costs	Post 1	1.77	.73	1.80	.76	1.88	.84	1.94	.82
	Post 2	2.03	.87	1.91	.85	1.96	.78	1.87	.89
	Post 3	2.16	.86	1.93	.84	1.92	.72	1.96	.91
Pill Costs	Post 1	1.63	.70	1.53	.58	1.73	.74	1.59	.74
	Post 2	1.76	.86	1.54	.68	1.74	.75	1.49	.60
	Post 3	1.72	.78	1.66	.85	1.57	.59	1.63	.80

		Males				Females			
		Experimental		Control		Experimental		Control	
Measures	Test	M	SD	M	SD	M	SD	M	SD
Soft Peer Use	Post 1	29.08	20.95	23.32	17.75	29.34	17.59	35.02	24.70
	Post 2	34.22	21.39	31.00	19.28	36.08	19.24	44.09	21.82
	Post 3	39.40	21.45	37.45	22.75	46.59	20.52	46.90	19.22
Hard Peer Use	Post 1	8.44	12.21	5.34	8.64	11.66	13.56	8.08	11.25
	Post 2	10.13	17.05	8.00	10.21	8.33	13.51	9.19	11.55
	Post 3	9.21	16.37	9.32	11.76	8.82	12.29	11.26	16.64
Alc Involve	Pre	2.15	1.16	2.09	1.23	1.84	.96	2.08	1.31
	Post 1	2.23	.94	2.09	.96	2.24	.96	2.32	1.01
	Post 2	2.75	1.09	2.24	.97	2.42	1.09	2.30	1.09
	Post 3	2.98	1.02	2.47	1.16	2.64	1.01	2.63	1.01
Cig Involve	Pre	1.50	1.01	1.38	.97	1.57	.98	1.79	1.27
	Post 1	1.52	.74	1.42	.71	1.97	1.24	2.09	1.30
	Post 2	1.78	.99	1.66	1.03	2.08	1.32	2.25	1.44
	Post 3	1.69	.87	1.65	1.04	2.30	1.44	2.60	1.43
Pot Involve	Pre	1.11	.38	1.34	.96	1.10	.44	1.36	.80
	Post 1	1.37	.87	1.42	.81	1.47	.98	1.68	1.12
	Post 2	1.71	1.13	1.78	1.26	1.62	1.03	1.82	1.31
	Post 3	2.06	1.32	1.81	1.21	1.84	1.05	1.89	1.21
Inhalant Involve	Pre	1.21	.64	1.18	.49	1.04	.14	1.20	.77
	Post 1	1.08	.33	1.05	.18	1.10	.28	1.16	.48
	Post 2	1.21	.63	1.13	.44	1.12	.41	1.11	.45
	Post 3	1.18	.41	1.14	.60	1.08	.33	1.19	.51
Barbiturate Involve	Pre	1.05	.22	1.04	.14	1.01	.08	1.04	.17
	Post 1	1.04	.18	1.03	.16	1.05	.20	1.10	.32
	Post 2	1.16	.56	1.07	.31	1.07	.35	1.08	.26
	Post 3	1.15	.37	1.16	.67	1.10	.33	1.18	.42
Amphetamine Involve	Pre	1.02	.12	1.08	.36	1.01	.05	1.04	.19
	Post 1	1.04	.22	1.03	.16	1.09	.33	1.08	.25
	Post 2	1.20	.59	1.10	.37	1.17	.60	1.14	.50
	Post 3	1.18	.47	1.16	.47	1.22	.53	1.32	.68
Cocaine Involve	Pre	1.04	.22	1.06	.25	1.02	.18	1.01	.05
	Post 1	1.04	.16	1.00	.01	1.09	.32	1.10	.28
	Post 2	1.29	.74	1.06	.24	1.13	.52	1.27	.82
	Post 3	1.29	.64	1.08	.23	1.18	.57	1.21	.61
PCP Involve	Pre	1.00	.04	1.05	.20	1.00	.04	1.01	.05
	Post 1	1.02	.09	1.00	.01	1.08	.41	1.02	.10
	Post 2	1.12	.47	1.00	.01	1.02	.09	1.05	.30
	Post 3	1.05	.26	1.02	.11	1.01	.05	1.02	.15
LSD Involve	Pre	1.01	.05	1.00	.00	1.00	.00	1.00	.00
	Post 1	1.01	.07	1.02	.11	1.06	.35	1.02	.11
	Post 2	1.08	.35	1.01	.06	1.02	.11	1.11	.56
	Post 3	1.06	.26	1.05	.24	1.04	.21	1.05	.24
Heroin Involve	Pre	1.02	.07	1.01	.06	1.00	.00	1.04	.17
	Post 1	1.02	.14	1.00	.00	1.06	.30	1.02	.10
	Post 2	1.18	.72	1.01	.05	1.02	.14	1.03	.16
	Post 3	1.07	.32	1.04	.17	1.00	.00	1.00	.00

the posttest analyses against finding positive treatment effects for boys. Significant main effects for attrition status were obtained on four measures. Boys who remained in the sample had more desirable scores than boys who left on locus of control for success, academic self-esteem, GPA, and marijuana involvement; these findings limit the generalizability of the boys' outcome results. Only two significant main effects were found for condition, suggesting initial equivalence. As compared to controls, experimental boys had more desirable scores on locus of control for failure and PCP involvement.

One significant treatment by attrition interaction was obtained for girls. Among attrited girls, controls had less inhalant involvement than experimentals. There were six significant main effects for attrition status. Girls who remained in the sample had more desirable scores than girls who left on locus of control for success, pill benefits, general drug attitudes, barbiturate involvement, cocaine involvement and heroin involvement. This pattern of effects indicates that girls who dropped out of the study were "worse" in terms of the outcome variables than those who remained; thus, generalizability of the outcome results is limited. Only one significant main effect was obtained for treatment condition. Control girls initially had better attitudes toward school than experimental girls. The evidence for girls suggests that experimentals and controls were initially equivalent on most pretest measures.

Treatment vs. Control Differences

Because the variances and covariances of many measures differed for boys and girls, separate analyses of covariance were performed for each sex. Although this approach increases the number of statistical tests performed, and the chance of Type I error, it is less likely to violate the assumptions underlying the analysis.

A one-way (treatment condition) analysis of covariance was conducted on each posttest 3 measure with the corresponding pretest as the covariate. Exceptions to this procedure were made for those variables not measured at pretest: Att Sch was used as a covariate for Peer Att Sch; GPA for Unex Abs and Non-drug Prob; Soft Att for Alc Costs, Pot Costs and Pill Costs; Soft Peer Att for Soft Peer Use; Hard Peer Att for Hard Peer Use. Analyses of variance were performed on posttest 3 measures of Knowledge, Drug Problems, Coc Involve, PCP Involve, LSD Involve, and Her Involve due to limited variance on the corresponding pretests.

Table 4 summarizes the results of these ANOVAs and ANCOVAs. The results formed no pattern of effects for girls; there were only two significant effects in the 35 analyses and both were negative. For boys, there was a pattern of negative treatment effects, and only two positive effects. The expectation was that positive treatment effects would be found primarily for the following variables: affective teaching climate, attitudes toward school, social self-esteem, and discipline problems. There were no significant differences on these variables for girls; however, there was a negative effect on attitudes toward school for boys. Thus, with regard to the hypothesized outcomes, there was no evidence supporting the effectiveness of the strategy.

The results for boys on the drug-related measures were negative. Boys in the experimental group were more pro-drug in attitudes and in perceived peer attitudes, and also engaged in more alcohol and cocaine use than boys in the control group.

TABLE 4

SUMMARY OF ANALYSES OF VARIANCE AND COVARIANCE ON STUDENT DATA

	Males		Females	
Measure	B	F	B	F
Affec Climate	.39	2.86	.66	1.56
Social Self	.43	<1	.53	2.50
Acad Self	.94	1.13	1.00	1.93
Control Succ	.30	<1	.31	2.96
Control Fail	.43	4.76-	.21	3.90-
Att Sch	.65	12.10-	.75	1.42
Peer Att Sch	.46	8.73-	.36	5.38-
GPA	.52	2.32	.75	<1
Unex Abs	-.69	4.30-	-1.15	<1
Non-drug Prob	-.97	2.21	-.44	1.13
Drug Prob[a]	--	4.70+	--	<1
General Drug Att	.33	6.53-	.53	<1
Alc Benefits	.48	4.48-	.40	<1
Pot Benefits	.59	3.64-	.25	<1
Alc Costs	.39	5.79-	.34	<1
Pot Costs	.48	4.17-	.54	<1
Soft Att	.39	3.33	.53	<1
Knowledge[a]	--	<1	--	3.31
Soft Peer Att	.15	4.95-	.28	<1
Soft Peer Use	2.05	<1	6.53	<1
Alc Involve	.52	11.52-	.48	<1
Cig Involve	.39	2.82	.59	<1
Pot Involve	.73	3.53	.65	<1
Pill Benefits	.33	2.79	.21	<1
Pill Costs	.35	1.32	.35	<1
Hard Peer Att	.15	4.13-	.28	<1
Hard Peer Use	.78	<1	3.71	<1
Hard Att	.33	2.94	.32	<1
Inhalant Involve	.14	3.58	.62	<1

Table 4 (Cont)

	Males		Females	
Measure	B	F	B	F
Barbiturate Involve	.46	1.34	.79	<1
Amphetamine Involve	.01	1.45	1.00	<1
Cocaine Involve[a]	--	4.00-	--	<1
PCP Involve[a]	--	<1	--	<1
LSD Involve[a]	--	<1	--	<1
Heroin Involve[a]	--	<1	--	1.97

NOTE: The F-ratios are for the treatment condition effect. The degrees of freedom for the error term are 108-137 for females and 100-132 for males. B is the unstandardized regression coefficient of the posttest on its corresponding pretest.

- = Significant negative effect ($p \leq .05$)
+ = Significant positive effect ($p \leq .05$)
[a] = Analysis of variance was conducted on this variable.

Relationship Between Student Outcomes and Treatment Exposure

The treatment exposure index (Treatment Expos) was the total number of classes a student had since 7th grade in which there was an ECM-trained teacher. This index was recoded to classify students into three levels of exposure. For boys, these levels were 6-11 classes (M = 9.08), 12-14 classes (M = 12.98), and 15-19 classes (M = 16.29). For girls, these levels were 5-12 classes (M = 10.35), 13-17 classes (M = 15.13), and 18-21 classes (M = 19.27). Analyses were performed separately for each sex on the extreme groups, which included roughly the same percentage of students. The high exposure groups included 32% of the boys and 29% of the girls; the low exposure groups included 26% of the boys and 25% of the girls.

One-way analyses of covariance were conducted on the posttest 3 measures with exposure group as the factor (low vs. high) and the corresponding pretest as the covariate. Analyses of the boys' exposure to treatment revealed three significant effects, all favoring boys with low exposure. Boys who had the fewest classes with ECM-trained teachers had lower scores on pot benefits, F (1,45) = 7.94, p <.01, pot costs, F (1,48) = 4.20, p <.05, and pill costs, F (1,48) = 5.74, p <.05. For girls, there were three significant effects, also favoring girls with the least exposure to treatment. Girls who had the fewest classes with ECM-trained teachers had higher academic self-esteem F (1,45) = 10.86, p <.01, attitudes toward school, F (1,45) = 4.42, p <.05, and GPA, F (1,46) = 6.04, p <.05; and lower general drug attitudes, F (1,38) = 4.10, p <.05.

In sum, there was evidence for both boys and girls that greater exposure to classes with ECM-trained teachers was negatively related to some student outcomes; however, except for attitudes toward school, positive treatment effects were not hypothesized for these outcomes.

Discussion

The findings of the present study indicate that having had teachers who participated in ECM training did not improve student attitudes or behaviors. Students in the experimental group were exposed, to varying degrees, to ECM-trained teachers during their entire junior high school experience. That ECM did not create a more "responsive" school climate during this time argues against ECM training for teachers as an effective prevention strategy.

Comparison of experimental and control boys appears to indicate that ECM may be counterproductive. However, these results, which are strikingly consistent and negative, are best interpreted as artifactual. Differential attrition left more "high risk" boys in the experimental as opposed to the control group at the final posttest. Furthermore, interim evaluations of ECM found no pattern of treatment effects for boys in any grade (Schaps, et al., Note 1; Moskowitz et al., Note 2). Although the present treatment exposure analysis found that experimental boys with relatively more exposure to ECM were more "drug-prone," ECM was not expected to have direct effects on any drug variables. Therefore, these results are considered spurious.

For girls, results of the experimental-control analysis and the treatment exposure analysis suggest that ECM is ineffective or harmful. The experimental-control analysis failed to uncover positive findings for experimental girls, which is consistent with the interim evaluations of ECM. Also, the treatment exposure analysis found that relatively greater exposure to ECM was associated with negative effects on several variables. However, only one of these variables (attitudes toward school) was hypothesized to be influenced by ECM, and the

experimental-control analysis found no difference on this variable. Thus, it would be erroneous to conclude from an isolated finding that ECM-training "backfired" and caused unanticipated negative effects. Moreover, in neither of the previous evaluations was ECM exposure reliably related to student outcomes.

Alleged weaknesses in ECM training procedures or in teacher implementation were previously held responsible for the disappointing results. But, both of these explanations ignore the shortcomings of the ECM strategy. Even optimal training procedures fail to guarantee teacher implementation, and ECM implementation itself resists definition. Because each classroom provides unique opportunities for teacher-student interaction, the classroom management skills provided to teachers are for application on an ad hoc basis; thus, there is no standardization of the ECM treatment. Also, teachers are expected to integrate these skills into their teaching styles without disruption to their established classroom routines, and some of these routines may be incompatible with the goals of ECM. Finally, recent evidence suggests that many affective teacher behaviors are negatively related to student self-concept and achievement gain (Coker, Medley, and Soar, 1980). Thus, the underlying premise of ECM, that these teacher behaviors benefit students, may be questionable.

In sum, the present evaluation examined the effects of ECM on students from a single junior high school who were exposed to ECM-trained teachers over three years. The results indicated that students failed to adopt more constructive attitudes or behaviors as a result of this exposure. It is unlikely that ECM training will equip teachers to countervail the attitudes and behaviors that predispose students to abuse substances.

Reference Notes

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